REMARKS

Consideration of the above-identified application in view of the foregoing amendments and following remarks is respectfully requested. Applicant respectfully submits that this Application is in condition for allowance. If, however, the Examiner should disagree and intends to issue an Office Action rejecting one or more of the pending claims, Applicant requests that an interview be scheduled to discuss the claims and the cited reference(s). Applicant firmly believes that, in that instance, an interview will facilitate prosecution of this application.

Claim Status

Claims 1, 5, 7-36, 40, 42-71, 75, and 77-110 were pending in this application. Claims 1, 5, 10-21, 26-31, 33-36, 40, 45-56, 61-66, 68-71, 75, 80-91, 96-101 and 103-105 were withdrawn from consideration. Claims 7-9, 22-25, 32, 42-44, 57-60, 67, 77-79, 92-95, 102 and 106-110 are currently being considered and have been rejected. By this paper, independent claims 32, 67, 102 and 106 are amended. No new matter has been amended by these amendments.

Rejections

The Office Action has rejected claims 7, 32, 42, 67, 77, 102 and 106 under 35 U.S.C. § 103(a) allegedly as being unpatentable over the combination of Edgar, U.S. Patent No. 5,266,805 ("Edgar"), Florent, U.S. Patent No. 5,832,111 ("Florent"), and Maeda et al., U.S. Publication No. 20030128889 ("Maeda"). The Office Action has rejected claims 8-9, 22-25, 43-44, 57-60, 78-79 and 92-95 under 35 U.S.C. § 103(a) allegedly as being unpatentable over the combination of Edgar and Florent as applied to claims 7, 42 and 77, and further in view of Nichani et al., U.S. Patent No. 5,949,905 ("Nichani"). Applicants respectfully traverse these rejections.

Claim 32 is directed to a signal processing method for an image signal in which the

infrared image signal of the plurality of pixels is segmented into a plurality of blocks each having

two or more pixels. This claim recites:

> "32. A signal processing method for processing a visible
> light image signal and infrared image signal obtained by
> illuminating a transparent document with light beams respectively
> coming from a visible light source for mainly emitting visible light
> and an infrared light source for mainly emitting infrared light, and
> photoelectrically converting optical images of the transparent
> document into an image signal of a plurality of pixels, comprising:
>
> a segmentation step of segmenting the infrared image
> signal of the plurality of pixels into a plurality of blocks, wherein
> each block includes an infrared image signal of two or more pixels;
>
> a generation step of generating a histogram for each of the
> plurality of blocks on the basis of the infrared image signal of each
> block;
>
> a calculation step of calculating a threshold value of gray
> level for each of the plurality of blocks on the basis of the
> histogram generated in the generation step;
>
> an extraction step of comparing the threshold value
> calculated in the calculation step with the infrared image signal,
> and extracting infrared image signal components having gray
> levels not more than the threshold value, for each of the plurality
> of blocks; and
>
> an interpolation step of executing an interpolation process
> of the visible light image signal on the basis of the infrared image
> signal components extracted in the extraction step."

Thus, this method includes a histogram generation step and a threshold value calculation

step based on the histogram.

The Office Action admits that Edgar "fails to expressly disclose a means for determining

the threshold value," and refers to Florent (i.e., col. 1, lines 14-19) as disclosing calculating a

threshold value based on the histogram. Applicant notes that the cited portion of Florent

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describes that "[t]he invention relates to a method and a device for binary segmentation of a digital image I0 with a threshold obtained using a histogram…"

However, Applicants' claim 32 requires "calculating a threshold value of gray level for each of the plurality of blocks on the basis of the histogram generated in the generation step." Applicants' specification describes that this feature is beneficial because, for example, dust can be nearly accurately detected as a defect region without being influenced by the mixed grayscale data of the positive image, and determination errors of a cyan region can be eliminated. See, for example, page 33, line 23 through page 34, line 14 of the original specification.

The Office Action further cites Maeda as simply disclosing "segmenting an infrared image signal in a plurality of blocks and performing visible and image signal processing on the respective blocks (Maeda paragraph [0121])."

Maeda teaches that "Since the IR data and each color data (e.g., R data) are independently read; the pixel read position of the IR data normally deviates from that of each color data. Therefore, such alignment between the defect block in the IR data and the corresponding block in each color data is required." (See [0120]) This is the motive of dividing IR data into blocks, which is different from the reason of dividing into blocks in the present invention. Nothing in Maeda teaches, discloses or suggests "calculating a threshold value of gray level for each of the plurality of blocks on the basis of the histogram generated in the generation step" as recited in Applicants' claim 32. Disclosing segmenting of pixels into blocks as in Maeda doesn't necessarily mean that a calculation of threshold is performed for each of the segmented blocks.

On the other hand, the possibility that the R, G, B and infrared images deviate from each other is not considered in Edger. Therefore, there is no motive of dividing these images into

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blocks as described in Maeda. Further, Florent is merely cited to disclose how to determine the threshold value of a single image, and there is no reason for dividing the image as described in Maeda.

Accordingly, Applicant believes that the Office Action fails to establish a prima facie case of obviousness. To establish a prima facie case of obviousness, there must be (1) a showing that all claim elements are present in the cited references, MPEP § 2143.03, and (2) some suggestion or motivation, either in the references themselves or in the general knowledge available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. MPEP § 2143.01. Because both of these requirements have not been met, a proper prima facie case of obviousness has not been set forth in the Office Action and the rejection should be withdrawn.

Nonetheless, independent claims have been amended for further clarification in an effort to expedite the prosecution process. In particular, independent claim 67 is amended to recite, *inter alia*, "a generation unit adapted to generate a histogram for each of the plurality of blocks with reference to an intermediate value of frequencies of occurrence of the infrared image signal of each block." Independent claims 102, 106 are similarly amended. Support for the amendment may be found, for example, at page 20, lines 9-12 along with Fig. 5 of the original specification.

Accordingly, each of claims 32, 67, 102 and 106 is believed neither anticipated by nor rendered obvious in view of the cited references (i.e., Edgar, Florent, Maeda and Nichani), either taken alone or in combination, for at least the reasons discussed above.

Withdrawal of the rejections of claims 32, 67, 102 and 106 under 35 U.S.C. §103(a) is respectfully requested.

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Applicants have not independently addressed the rejections of the dependent claims. Applicants submit that, in view of the amendments to the claims presented herein and, for at least similar reasons as to why the independent claims from which the dependent claims depend are believed allowable as discussed supra, the dependent claims are also allowable. Applicants however, reserve the right to address any individual rejections of the dependent claims should such be necessary or appropriate.

For the above-stated reasons, this application is respectfully asserted to be in condition for allowance. An early and favorable examination on the merits is requested. In the event that a telephone conference would facilitate the examination of this application in any way, the Examiner is invited to contact the undersigned at the number provided.
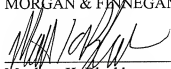
AUTHORIZATION

No petitions or additional fees are believed due for this amendment and/or any accompanying submissions. However, to the extent that any additional fees and/or petition is required, including a petition for extension of time, Applicant hereby petitions the Commissioner to grant such petition, and hereby authorizes the Commissioner to charge any additional fees, including any fees which may be required for such petition, or credit any overpayment to Deposit Account No. 13-4500 (Order No. 1232-4724). A DUPLICATE COPY OF THIS SHEET IS ENCLOSED.

An early and favorable examination on the merits is respectfully requested.

Respectfully submitted,
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Dated: <u>March 8, 2007</u>   By: _____

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